Paper No. 29

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte THEODOOR C. A. HENS,
JOHANNES M. A. A. COMPEN,
MARIA C. VAN UDEN and THOMAS D. M. VRANCKEN

Appeal No. 93-3500
Application 07/842,724[1]

ON BRIEF

Before KRASS, JERRY SMITH and FLEMING, Administrative Patent Judges.

FLEMING, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 1 through 9, 11, 12 and 14 through 21, all the claims in the application.

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[1] Application for patent filed February 25, 1992. According to applicant, the application is a continuation of Application 07/509,263, filed April 13, 1990.

The invention is directed to a material for a color picture tube shadow mask in a color picture tube. In a conventional color picture tube with a shadow mask, the shadow mask is subjected to deformation due to thermal expansion. This "doming" adversely affects the display quality. The Appellants' invention is to make the mask surface facing away from the display screen rough so that heat may be dissipated. Appellants disclose that the surface may be roughened by various means such as etching or scouring, or applying a glass layer composed of glass and particles having a higher melting point than glass such as powdered metal.

The independent claim 1 is reproduced as follows:

1. A colour display tube comprising an electron gun, a getter, a display screen and a colour selection structure which is arranged in front of the display screen and which has a surface with a longitudinal axis facing away from the display screen, characterized in that the surface is rough and a layer of getter material is applied to the rough surface.

The examiner relies on the following references:

Ezawa	3,689,792	Sep. 5, 1972
Tokita	4,733,125	Mar. 22, 1988
Watanabe	4,754,188	June 28, 1988

Claims 1 through 9 and 14 through 21 stand rejected under 35 U.S.C. 103 as being unpatentable over Tokita in view of Ezawa. Claims 11 and 12 stand rejected under 35 U.S.C. 103 as being unpatentable over Tokita in view of Ezawa and Watanabe.

Rather than reiterate the arguments of Appellants and the Examiner, reference is made to the briefs and answer for the respective details thereof.

OPINION

We will not sustain the rejection of claims 1 through 9, 11, 12 and 14 through 21 under 35 U.S.C. 103.

The Examiner argues that Tokita teaches a shadow mask having a glass layer to reduce the doming of the shadow mask, but fails to teach that the shadow mask's surface is rough. The Examiner points to Ezawa for the teaching that an electron shield surface is roughened to increase heat radiation. The Examiner then concludes that it would have been obvious to roughen the Tokita's shadow mask surface to obtain the Appellants' claimed invention.

The Ezawa's electron shield does not serve the same purpose as a shadow mask. Ezawa teaches in the Abstract that the electron shield is to prevent unnecessary electrons from bombarding the phosphor screen. Thus, the Ezawa's electron shield is to prevent any electrons from passing through itself and bombarding the phosphor screen. In contrast, Tokita discloses in column 3, lines 1-3, that the purpose of the shadow mask is to selectively transmit through its apertures electrons so that the transmitted electrons may bombard the phosphor screen. Furthermore, Tokita points out in column 2, the

importance of insuring that these apertures are open so that electrons may pass through the shadow mask. Thus, any treatment to the shadow mask must be done with much greater care than any treatment to an electron shield. With these facts in mind, the Examiner has not shown why the artisan would have been led to apply the metal powder of Ezawa (which is applied to an electron shield) to a shadow mask. In fact, the application of such a blocking metal powder to the mask of Tokita would adversely affect the operation of the mask which must permit the transmission of electrons.

Ezawa does not provide any support for combining Ezawa with Tokita. Ezawa discloses a shadow mask 4 in Figure 1. Ezawa does not teach or suggest that the treatment of applying a metal powder to its shadow mask in Figure 1. In column 2, lines 38-49, Ezawa recognized the problem of heating of the shadow mask and teaches that the cooling of the electron shield is the solution. However, Ezawa does not teach or suggest applying the metal powder to the shadow mask to directly reduce heating of the shadow mask. Clearly, if the only consideration was for reducing heating as suggested by the Examiner, then Ezawa would have provided such a teaching.

Tokita does not suggest using Ezawa's metal powder coating technique on a shadow mask, but teaches away from using metal coatings. Tokita teaches that the prior art applied metal

layers to the shadow mask in column 2, lines 38-53. Tokita teaches that the prior art applied a manganese dioxide to form an aluminum layer. However, this technique required considerable equipment and operation time, resulting in poor mass production. Tokita teaches in column 3 that applying a ceramic material layer to the shadow mask overcomes these prior art problems and rejects the techniques such as Ezawa. Thus, Tokita teaches away from the Ezawa teaching of using a metal powder to form metallic layers on the shadow mask.

We agree with the Examiner that Ezawa is a general teaching that a roughened metal does dissipate heat better than smooth metal. However, Ezawa does not teach how to provide a roughened material for the shadow mask without impairing the shadow mask's required functions. Furthermore, Tokita teaches the use of a ceramic coating[2] for the shadow mask. Ezawa does not teach how to roughen a ceramic coating. It is clear, from the prior art, that there has been a long felt need to solve the problem of doming. Appellants' disclosure is directed to solving this problem without impairing the operation of the shadow mask. The

[2]We recognize that the Appellants' claimed term, "rough", is broad. However, it would be improper to read Tokita's ceramic material as being "rough" when that term is viewed in light of the Appellants' disclosure and the prior art. See the instant specification, last line of page 1 to the top of page 2 where "roughness" is defined.

examiner has presented no cogent reasoning, and we know of none, as to why the artisan would have been led to roughen Tokita's ceramic material.

We find no suggestion to combine the Ezawa teachings with Tokita for the above reasons. Without a suggestion to combine Ezawa with Tokita, we do not find it necessary to address the further combination using Ezawa and Tokita in view of Watanabe.

We have not sustained the rejection of claims 1 through 9, 11, 12 and 14 through 21 under 35 U.S.C. 103 based on the evidence provided by the applied references. Accordingly, the Examiner's decision is reversed.

REVERSED

ERROL A. KRASS)
Administrative Patent Judge)
)
JERRY SMITH)
Administrative Patent Judge) BOARD OF PATENT
) APPEALS AND
) INTERFERENCES
)
MICHAEL R. FLEMING)
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